



SLOVENSKI STANDARD SIST EN ISO 9237:1999

01-marec-1999

Tekstilije - Ugotavljanje zračne prepustnosti tekstilij (ISO 9237:1995)

Textiles - Determination of permeability of fabrics to air (ISO 9237:1995)

Textilien - Bestimmung der Luftdurchlässigkeit von textilen Flächengebilden (ISO 9237:1995)

Textiles - Détermination de la perméabilité à l'air des étoffes (ISO 9237:1995)

STANDARD PREVIEW
(standards.iteh.ai)

Ta slovenski standard je istoveten z: EN ISO 9237:1995

<https://standards.iteh.ai/catalog/standards/sist/8614f98b-b6ea-45ae-829f-b31e1bd16827/sist-en-iso-9237-1999>

ICS:

59.080.30 Tkanine Textile fabrics

SIST EN ISO 9237:1999

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 9237:1999

<https://standards.iteh.ai/catalog/standards/sist/8614f98b-b6ea-45ae-829f-b31e1bd16827/sist-en-iso-9237-1999>

EUROPEAN STANDARD

EN ISO 9237

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 1995

ICS 59.080.30

Descriptors: textiles, fabrics, tests, determination, gas permeability

English version

**Textiles - Determination of permeability of fabrics
to air (ISO 9237:1995)**Textiles - Détermination de la perméabilité à
l'air des étoffes (ISO 9237:1995)Textilien - Bestimmung der Luftdurchlässigkeit
von textilen Flächengebilden (ISO 9237:1995)**STANDARD PREVIEW**
(standards.iteh.ai)SIST EN ISO 9237:1999<https://standards.iteh.ai/catalog/standards/sist/8614f98b-b6ea-45ae-829f-b31e1bd16827/sist-en-iso-9237-1999>

This European Standard was approved by CEN on 1995-05-05. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENEuropean Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

The text of the International Standard ISO 9237:1995 has been prepared by Technical Committee ISO/TC 38 "Textiles" in collaboration with CEN/TC 248 "Textiles and textile products". It has been submitted to Parallel Vote and has been approved on 1995-05-05 as a European Standard.

This European Standard shall be given the status of a National Standard, either by publication of an identical text or by endorsement, at the latest by December 1995, and conflicting national standards shall be withdrawn at the latest by December 1995.

According to CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 9237:1995 has been approved by CEN as a European Standard without any modification.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 9237:1999](https://standards.iteh.ai/catalog/standards/sist/8614f98b-b6ea-45ae-829f-b31e1bd16827/sist-en-iso-9237-1999)

<https://standards.iteh.ai/catalog/standards/sist/8614f98b-b6ea-45ae-829f-b31e1bd16827/sist-en-iso-9237-1999>

INTERNATIONAL
STANDARD

ISO
9237

First edition
1995-06-15

**Textiles — Determination of the
permeability of fabrics to air**

iTeh STANDARD PREVIEW
Textiles — Détermination de la perméabilité à l'air des étoffes
(standards.iteh.ai)

SIST EN ISO 9237:1999

<https://standards.iteh.ai/catalog/standards/sist/8614f98b-b6ea-45ae-829f-b31e1bd16827/sist-en-iso-9237-1999>



Reference number
ISO 9237:1995(E)

ISO 9237:1995(E)**Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 9237 was prepared by Technical Committee ISO/TC 38, *Textiles*.

Annexes A and B of this International Standard are for information only.

© ISO 1995

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Textiles — Determination of the permeability of fabrics to air

1 Scope

This International Standard describes a method for measuring the permeability of fabrics to air and is applicable to most types of fabrics, including industrial fabrics for technical purposes, nonwovens and made-up textile articles that are permeable to air.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 48:1994, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*.

ISO 139:1973, *Textiles — Standard atmospheres for conditioning and testing*.

ISO 10012-1:1992, *Quality assurance requirements for measuring equipment — Part 1: Metrological confirmation system for measuring equipment*.

3 Definition

For the purposes of this International Standard, the following definition applies.

3.1 air permeability: Velocity of an air flow passing perpendicularly through a test specimen under specified conditions of test area, pressure drop and time.

4 Principle

The rate of flow of air passing perpendicularly through a given area of fabric is measured at a given pressure difference across the fabric test area over a given time period.

5 Sampling

Select samples either in accordance with the procedure laid down in the material specification for the fabric, or as agreed between the interested parties.

In the absence of specification, follow the example of sampling given in annex B.

6 Atmospheres for conditioning and testing

The atmospheres for preconditioning, conditioning and testing shall be as specified in ISO 139.

7 Apparatus

Metrological confirmation of the test apparatus shall be carried out in accordance with ISO 10012-1.

7.1 Circular specimen holder, with an orifice allowing the test to be carried out on an area of 5 cm², 20 cm², 50 cm² or 100 cm².

The tolerance on the test area shall not exceed ± 0,5 %.

NOTE 1 Adequate support of the test specimen, particularly for large test surfaces, is recommended.

7.2 Means for clamping, to secure the specimen without distortion.

NOTE 2 Care should be taken to prevent leakage of air

around the edges of the test specimen. Alternatively the leakage may be measured separately and subtracted from the test results.

7.3 Guard ring device, to prevent leakage, for optional use in conjunction with the clamping means (7.2), (see A.2.1).

7.4 Pressure gauge or manometer, connected to the test head to indicate a pressure drop across the specimen test area of 50 Pa, 100 Pa, 200 Pa or 500 Pa, with an accuracy of at least 2 %.

7.5 Means for drawing a steady flow of air at controlled temperature and humidity through the specimen holder and for adjusting the flowrate to produce a pressure drop across the specimen of between 50 Pa and 500 Pa.

7.6 Flowmeter, volumetric counter or measuring aperture, indicating the rate of air flow in cubic decimetres per minute (litres per minute) with an accuracy of at least ± 2 %.

NOTE 3 Flowmeters or volumetric counters measuring the rate of air flow in cubic centimetres per second (or other suitable units) may be used if the required accuracy of at least ± 2 % is maintained.

8 Conditioning of samples and test conditions

Prior to test the samples shall be conditioned and the test performed in the standard atmosphere for testing (see clause 6).

Recommended conditions for the test are:

test surface area: 20 cm²;

pressure drop: 100 Pa for apparel fabrics;

pressure drop: 200 Pa for industrial fabrics.

In cases where these pressure drops cannot be achieved or are not appropriate, an alternative pressure drop of 50 Pa or 500 Pa may be used and/or an alternative test area of 5 cm², 50 cm² or 100 cm² may be chosen, if agreed between the interested parties.

NOTE 4 For comparison of results it is recommended to perform the test with the same test area and pressure drop.

9 Test procedure

NOTE 5 Advice on checking calibration and conducting the test is given in annex A.

Mount the test specimen in the circular specimen holder (7.1) with sufficient tension to eliminate wrinkles, if any, taking care that the fabric is not distorted in its own plane. Avoid selvages and areas with creases or folded places. For fabrics for which the air permeability may be different between the two faces of the fabric, specify in the test report [see 11 a) 2)] which face was tested. Clamp specimens coated on one side with the coating towards the lower pressure side to prevent air leakage.

Start the suction fan or other means (7.5) to force the air through the test specimen and adjust the flow of air gradually till a pressure drop, as recommended above, is achieved across the test area of the fabric. Record the air flow (see 7.6) after at least 1 min or until steady conditions are achieved.

NOTE 6 Some devices, e.g. volumetric counters, may need a volume of air flow of about 10 dm³ to assure the required accuracy.

Repeat the test at different locations on the sample at least 10 times under the same conditions.

10 Calculation and expression of results

10.1 Calculate the arithmetic mean of the individual readings and the coefficient of variation (to the nearest 0,1 %), stating the 95 % confidence interval.

10.2 Calculate the air permeability, R , expressed in millimetres per second, using the equation

$$R = \frac{\bar{q}_V}{A} \times 167$$

where

\bar{q}_V is the arithmetic mean flowrate of air, in cubic decimetres per minute (litres per minute);

A is the area of fabric under test, in square centimetres;

167 is the conversion factor from cubic decimetres (or litres) per minute per square centimetre to millimetres per second.

10.3 For open fabrics and nonwovens, the air permeability R may be expressed in metres per second using the equation

$$R = \frac{\bar{q}_V}{A} \times 0,167$$

where \bar{q}_V and A are as defined in 10.2.

10.4 Express the 95 % confidence interval in the units specified in 10.2 or 10.3, rounding the result R to 2 % of the value obtained in 10.2 or 10.3.

11 Test report

The test report shall include the following information:

- a) general information:
 - 1) the number and year of publication of this International Standard, i.e. ISO 9237:1995, and the date of test;
 - 2) all information necessary for complete identification of the sample tested and, if required, indication of the direction of air flow through the fabric;
 - 3) test surface area used, in square centimetres;
 - 4) pressure drop used, in pascals;
 - 5) number of specimens tested;
 - 6) the conditioning and testing atmospheres used;
 - 7) any deviation from the procedure specified.
- b) test results:
 - 1) mean air permeability \bar{R} , in millimetres per second or metres per second, as applicable;
 - 2) coefficient of variation, in percent;
 - 3) 95 % confidence interval, in millimetres per second or metres per second, as applicable.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 9237:1999](https://standards.iteh.ai/catalog/standards/sist/8614f98b-b6ea-45ae-829f-b31e1bd16827/sist-en-iso-9237-1999)

<https://standards.iteh.ai/catalog/standards/sist/8614f98b-b6ea-45ae-829f-b31e1bd16827/sist-en-iso-9237-1999>